REMARKS/ARGUMENTS

The Office Action of June 7, 2005 has been carefully considered.

It is noted that claims 1-39 are rejected under 35 U.S.C. §112, first paragraph.

Claims 1-39 are rejected under 35 U.S.C. §112, second paragraph.

Claims 1-39 are also rejected under 35 U.S.C. §103(a) over the patent to Zeller et al.

In connection with the rejection under 35 U.S.C. §112, first paragraph, it is respectfully submitted that the specification is enabling as to the maximum pre-heating temperature with respect to the avoidance of magnetite formation. The specification includes the well-known Bauer-Glaessner diagram (see Fig. 2), a thermodynamic diagram that relates the iron oxide phases to temperature, carbon monoxide - carbon dioxide and hydrogen - water vapor mixtures (in the surrounding atmosphere of such a reducing gas).

A person skilled in the art would have no difficulty in determining from this diagram the maximum temperature to which the particulate matter, i.e., iron ore = hematite, can be pre-heated without magnetite formation, namely by employing the given conditions (H_2, CO_2, CO, H_2O) of the envisioned reduction process to the diagram and experimentally approximating the values to the highest temperature possible by varying the parameters that can be influenced (usually the composition of the reducing gas field to the first particulate pathway reaction zone), while at the same time taking into account the requirement of a maximum reduction speed of 0.2% oxygen removal per minute. The same considerations would also apply to other metal-containing materials, because for virtually all known multiple-phase systems, thermodynamic diagrams like the Bauer-Glaessner diagram have been established. The determination of optimal process conditions or maximum values within given boundaries is part of the conventional work of an individual having skill in the art of the present invention.

Thus, it is respectfully submitted that those skilled in the art based upon the teachings provided in the specification of the present application would readily understand how to obtain a maximum pre-heating temperature with respect to the avoidance of magnetite formation.

In view of these considerations, it is respectfully submitted that the rejection of claims 1-39 under 35 U.S.C. §112, first paragraph, is overcome and should be withdrawn.

It is also respectfully submitted that the claims presently on file particularly point out and

distinctly claim the subject matter which applicants regards as the invention. Applicants do not understand the Examiner's difficulty with the terms "oxygen" and "magnetite" found in lines 18 and 19 of claim 4. Clearly the use of the term "oxygen" defines the maximum reduction speed in the reaction zone. Also, the recitation of "magnetite" is relative to the maximum pre-heating temperature. Applicants respectfully submit that there is nothing indefinite in claim 4 relative to the use of these two terms. "Oxygen" is positively used to define the reduction speed and "magnetite" is used in connection with defining the pre-heating temperature. These are all part of a process claim in which reducing gas is added to the first reaction zone and the reducing gas is conditioned so as to achieve a maximum reduction speed of 0.2% oxygen removal per minute and a maximum pre-heating temperature with respect to the avoidance of magnetite formation. Thus, the terms "oxygen" and "magnetite" are clearly positively recited in connection with the process step being described and thus, there is no problem, in applicants' opinion, regarding antecedent basis.

In view of these considerations, it is respectfully submitted that the rejection of claims 1-39 under 35 U.S.C. §112, second paragraph, is overcome and should be withdrawn.

It is respectfully submitted that the claims now on file differ essentially and in an unobvious, highly advantageous manner from the process disclosed in the reference.

Turning now to the reference, it can be seen that Zeller et al. disclose a process for the direct reduction of particulate iron-oxide-containing material. Zeller et al. do not disclose conditioning the reducing gas added to the first pathway reaction zone so as to achieve a maximum reduction speed of 0.2% oxygen removal per minute. Furthermore, Zeller et al. do not disclose conditioning the reducing gas so as to achieve a maximum pre-heating temperature with respect to the avoidance of magnetite formation, as in the presently claimed invention.

Zeller et al. teach adjusting the temperature of the particulate material to arrange of from 400°C-580°C in the first fluidized-bed zone, wherein the resonance time of the particulate material in the first fluidized-bed zone is limited to ten minutes at the most. According to Zeller et al., magnetite formation is hence decreased or avoided because the time period in which magnetite can be formed is limited to ten minutes. Zeller et al. do not make any teaching concerning changing the conditions that enable or facilitate the formation of magnetite, such as the composition or oxidation rate, respectively, of the reducing gas added to the first fluidized-

bed zone. The reduction speed in the first fluidized-bed zone is not considered by Zeller et al. since it is not at all important for the outcome of the process of Zeller et al. due to the limit of ten minutes imposed on the resonance time of the particulate material.

Furthermore, since Zeller et al. teach a measure for avoiding magnetite formation which is completely different from the process of the presently claimed invention and thus involves different process conditions, the optimization of the reduction rate in the process of Zeller et al. would not result in a maximum reduction speed of 0.2% oxygen removal per minute, as in the presently claimed invention.

Thus, Zeller et al. do not teach the presently claimed invention and furthermore, one skilled in the art would not have arrived at the presently claimed invention even if he had optimized the process of Zeller et al.

Furthermore, adjusting a temperature range of from 400°C-580°C in the first fluidized-bed zone is not equivalent to conditioning the reducing gas so as to achieve a maximum pre-heating temperature with respect to the avoidance of magnetite formation. According to Zeller et al., it does not make any difference which temperature within the range 400°C-580°C is adjusted as long as the resonance time is kept within ten minutes. There is no disclosure by Zeller et al. which would suggest adjusting a maximum pre-heating temperature in the first fluidized-bed zone. Even if a temperature of 580°C (the maximum temperature) is adjusted, Zeller et al. deliberately accept that magnetite is formed, albeit during a period of only ten minutes, since no measures are taken to directly avoid the formation of magnetite. In contrast, the presently claimed invention requires conditioning of the reducing gas so that a maximum pre-heating temperature is achieved while the formation of magnetite is avoided. This is not taught or suggested by Zeller et al.

In view of these considerations, it is respectfully submitted that the rejection of claims 1-39 under 35 U.S.C. §103(a) over the above discussed reference is overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on March 21, 2005:

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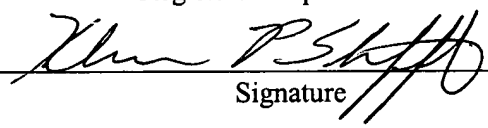
Name of applicant, assignee or Registered Representative



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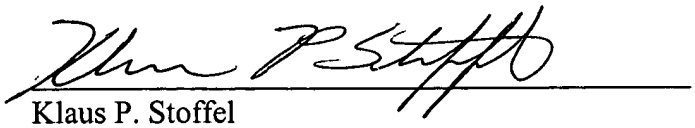
Respectfully submitted,



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